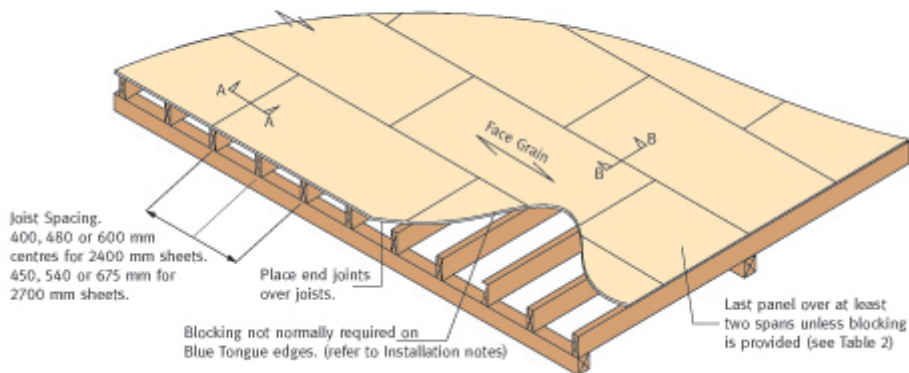# Plyfloor

Installation

Framing

- Use timber or steel frame spacings in Table 2 to suit Plyfloor thickness.
- Ensure top edges of joists are properly aligned.
- Use kiln dry Laserframe or Framesure framing or Hybeam Engineered "I" joists
  - To lower moisture level in inter-storey floor spaces.
  - Reduce differential joist deflections.
  - Minimise shrinkage in the depth of the floor (avoids cracking in exterior finishes and fittings).
  - Avoid nail popping.
- Blocking (nogs) - refer to Detail 1
  - Block all edges of standard "square edge" Ecoply structural plywood.
  - Block if the floor is being used as a diaphragm for lateral wind and earthquake resistance with fixings to transfer shear across the joints. In this case, details should be specified on drawings.
  - Use blocking "on the flat" to provide gaps where air flow is needed for ventilation.
- Blocking within the body of the floor is not required for tongue and grooved edges.

Detail 1: Plyfloor flooring layout

Joist Spacing.
400, 480 or 600 mm
centres for 2400 mm sheets.
450, 540 or 675 mm for
2700 mm sheets.

Place end joints over joists.

Blocking not normally required on Blue Tongue edges. (refer to Installation notes)

Last panel over at least two spans unless blocking is provided (see Table 2)

Sheet layout - refer to Detail 1.

- Place face grain at right angles to the supports
- Sheets must be continuous over at least two spans (three framing members).
- Lay the sheets in a staggered pattern.
- Allow a 2 to 3 mm expansion gap between sheets for square edges and 1 mm for tongue and grooved edges.
- Butt tongue and groove panels at the tongues because the machined edges can accommodate the movement. Allow expansion gap at the ends.
- Panels should be pushed together lightly by hand, cramping is not recommended.
- Allow 5 mm clearance inside confining structure such as concrete or brick walls adjacent to the floor.
- Allow clearance for ventilation as required.
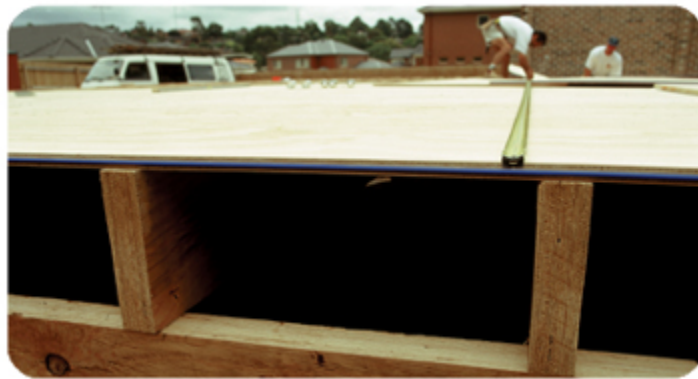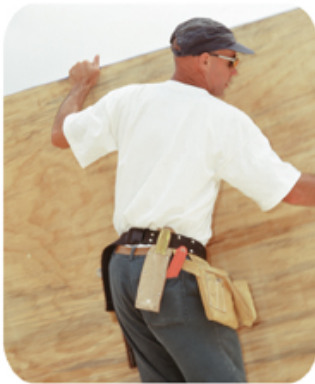
Floor Insulation

For ground floors requiring insulation foil, draped foil prevents the use of adhesive, and increases the quantity of foil required to achieve insulation performance. In practice, gaps provided by the draped foil are often inadequate. The best performing solution is to nail-glue the floor to increase stiffness and minimise squeaking, and stretch the foil flat under the joists. Use battens or sheets or strips of a low grade of non-structural plywood (7 mm pallet grade)

to fix the foil to the underside of the floor. Alternatively, use foil backed panels under the floor or a different type of insulation such as fibreglass (see Detail 2).

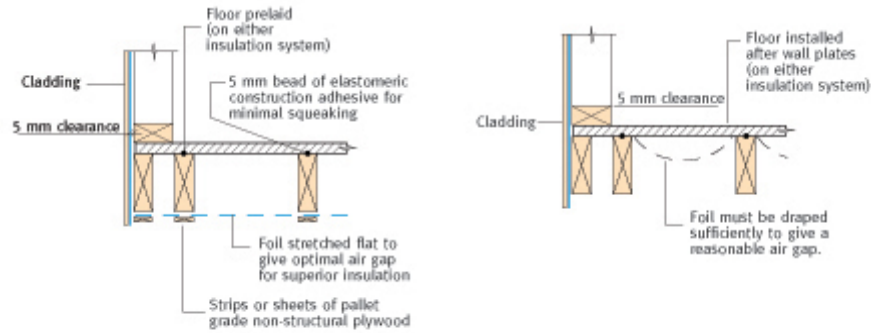

Detail 2: Plyfloor and insulation options

Table 3 - Minimum fastener specification

Plywood thickness	Timber framing				Screws in steel framing (size and load)			
	Nails (length, diameter, load)		Screws (gauge, root diameter, length, load)		Steel thickness approx 1.15 mm		Steel thickness 2.8 mm and over	
Up to 9 mm	40 x 2.5mm	570	No 8 (3.05 mm) x 30	1230	10-16 45*	1300	10-16 45	1200
12 and 15 mm	50 x 2.8 mm	710	No 8 x 40	1230	10-16 45	2000	10-16 45	1200
17	60 x 2.8 mm	710	No 10 (3.3 mm) x 40	1650	10-16 45	2100	14-20 45	3000
19 to 21 mm	60 x 2.8 mm	710	No 10 x 45	1650	10-16 45	2100	14-20 45	4000
25 mm	75 x 3.15 mm	883	No 10 x 50	1650	10-16 45	2100	14-20 45	5000

* Screw gauge-thread pitch-length in mm. The load in Table 3 is the characteristic load (N) for one fastener in single shear.

Detail 3: Fastening Plywood
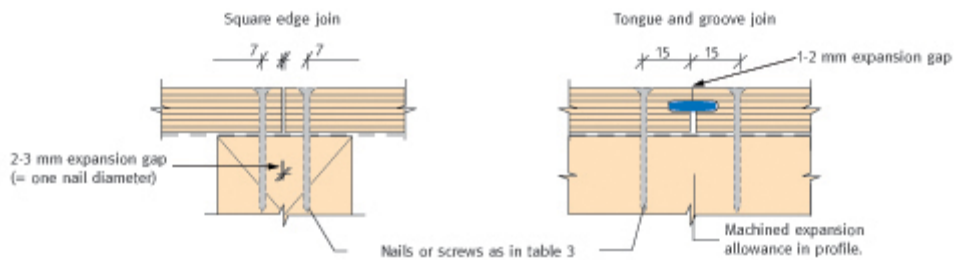
* Technical Considerations

As Plywood is made from wood and is hygroscopic in nature, i.e. it absorbs and desorbs moisture from the atmosphere to reach equilibrium moisture content in balance with the atmosphere.

Fixing of sheets

Plyfloor may be fixed to different types of framing with nails or screws or a combination of fasteners and elastomeric adhesive.

- Do not over-drive gun-nails or screws.
- Fix at least 7 mm or 3 fastener diameters from the sheet edges or behind tongues.
- Fix no more than 15 mm from sheet edges.
- Space fasteners at 150 mm centres on all edges, and 300 mm centres in the body of the sheet.
- Fasteners should be corrosion resistant to a level appropriate to the end use, life expectancy and expected exposure to moisture during construction and service.

Galvanised fasteners are the minimum recommendation and are normally satisfactory in dry wood.

Where plywood or framing may become damp or is H3 treated, use stainless steel (316) or silicon bronze flathead nails or countersunk screws to avoid corrosion in unpainted sheets for maximum durability. Follow the recommendations of the fastener manufacturer.

Fixing to Timber

- Galvanised nails or annular grooved nails have better holding power than smooth nails.
- Ring shank nails or annular grooved nails or screws are recommended for additional holding power.
- Stainless steel nails must be annular grooved.
- Punch nails and apply floor sealant before filling holes with a suitable putty.

Fixing to Steel

- Fix directly to roll formed steel (up to 2 mm thick) with self drilling, self tapping screws. If plywood gets damp and expands, screws in thicker steel may break. Keep plywood dry or use larger screws or:
- Bolt or screw battens to the steel and apply plywood as above for timber.

Adhesives

Elastomeric (Construction) adhesives should be used with nails to minimise floor squeaking.

- Use a bead of structural elastomeric adhesive in accordance with the manufacturer's instructions.
- Apply pressure using the standard nail pattern above.

Finishing

Paints and coatings should be applied following the manufacturer's instructions. Avoid heavy sanding that may remove the critically important structural face veneer. For floor coverings and roofing, adhesives must be compatible with CCA or LOSP treatment salts in H3 treated panels. Compatibility can often be improved by lightly washing, scrubbing and drying the plywood surface prior to fixing.

Storage and Handling

- Keep dry
- Store under cover (avoid tight cover and potential condensation).
- Handle and stack with care to avoid damage.
- Stack flat clear of ground on at least three evenly spaced bearers.

Ventilation

Ground floors must be ventilated in accordance with Clause F4.10 of the Building Code of Australia. Use H3 treated
Plyfloor where moisture levels in sub-floor regions are high. See Technical note "CCA Ecoply plywood - surface quality.